

CLAIMS

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1. A method for introducing a substance comprising a nucleic acid into a mammalian neural stem cell or progenitor cell, characterized in that said nucleic acid directly interacts with the cell membrane of said cell or a component within said cell membrane in vitro whereby the substance comprising said nucleic acid is taken up by the cell via the inherent transport mechanism of the cell.

2. A method according to claim 1, wherein said cell is derived from an adult.

3. A method according to claim 2, wherein said method is performed in a humid atmosphere at 37°C.

4. A method according to any one of the claims 1-3, wherein said substance is or comprises a single or double stranded, linear or circular DNA.

5. A method according to any one of the claims 1-3, wherein said substance is or comprises a single or double stranded RNA.

6. A method according to any one of the claims 1-3, wherein said substance is a fusion molecule comprising a nucleic acid part and a protein part.

7. A method according to any one of the claims 1-3, wherein said substance is an expression vector containing a specific cDNA.

8. A method according to claim 7, wherein said cDNA gives rise to a peptide or protein that activate proliferation and/or differentiation and/or lineage determination of said cells.

9. A method according to any one of the claims 1-6, wherein said substance gives rise to a detectable signal.

10. A method according to claim 7, wherein said cDNA gives rise to a peptide or protein that enables selective identification of stem cells and/or progenitor cells.

11. A method according to claim 10, wherein said peptide or protein gives rise to a detectable signal.

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12. A method according to claim 11, wherein said protein is a fluorescent protein.

13. A method according to claim 11 or 12, wherein
said detectable signal is due to a radioactively tagged
5 nucleic acid.

14. A method according to any one of the claims 1-13, wherein said cell is a cell in a tissue or cell culture.

15. Use of a method according to any one of the
10 claims 1-14, for identification of progenitor cells
and/or stem cells.

16. Use according to claim 15, wherein said cells after identification is isolated from surrounding cells of other types.

17. Use of a method according to any one of the claims 1-14, for gene therapy.

18. Use of a method according to claim 6 and 17,
wherein said protein part consists of a pharmaceutically
active protein.

20 19. Use of a method according to claim 8, for propa-
gation of neural cells.

20. Use according to claim 18, wherein said propagated neural cells are suitable for transplantation to patients.

25 21. Use of a method according to any one of the
claims 1-14, for detection of a medicinal product com-
prising cDNA containing expression plasmids.

22. Use of a method according to any one of the claims 1-14, for diagnostic purposes.

30 23. Use of a method according to any one of the
claims 8-13, wherein said protein or detectable signal
allows for testing or screening of aforementioned protein
or signal.

24. A method for introducing a substance comprising
35 a nucleic acid into a mammalian neural stem cell or pro-
genitor cell, characterized in that said nucleic acid
directly interacts with the cell membrane of said cell or

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a component within said cell membrane in vivo, whereby the substance comprising said nucleic acid is taken up by the cell via the inherent transport mechanism of the cell.

5 25. A method according to claim 24, wherein said cell is derived from an adult.

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26. A method according to claim 24, wherein said substance is or comprises a single or double stranded, linear or circular DNA.

10 27. A method according to claim 24, wherein said substance is or comprises a single or double stranded RNA.

15 28. A method according to claim 24, wherein said substance is a fusion molecule comprising a nucleic acid part and a protein part.

29. A method according to claim 24, wherein said substance is an expression vector containing a specific cDNA.

20 30. A method according to claim 29, wherein said cDNA gives rise to a peptide or protein that activate proliferation and/or differentiation and/or lineage determination of said cells.

31. A method according to claim 24, wherein said substance gives rise to a detectable signal.

25 32. A method according to claim 29, wherein said cDNA gives rise to a peptide or protein that enables selective identification of stem cells and/or progenitor cells.

30 33. A method according to claim 32, wherein said peptide or protein gives rise to a detectable signal.

34. A method according to claim 33, wherein said protein is a fluorescent protein.

35 35. A method according to claim 33, wherein said detectable signal is due to a radioactively tagged nucleic acid.

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36. A method according to any one of the claims 1-13, wherein said cell is a cell in the central nervous system of a patient.

37. Use of a method according to claim 24, for identification of progenitor cells and/or stem cells.

38. Use according to claim 37, wherein said cells after identification is isolated from surrounding cells of other types.

39. Use of a method according to any one of the claims 24-38 for gene therapy.

40. Use of a method according to claim 28, wherein said protein part consists of a pharmaceutically active protein.

41. Use of a method according to claim 30, for propagation of neural cells.

42. Use of a method according to any one of the claims 24-36, for detection of a medicinal product comprising cDNA containing expression plasmids.

43. Use of a method according to any one of the claims 24-36, for diagnostic purposes.

44. Use of a method according to any one of the claims 30-35, wherein said protein or detectable signal allows for testing or screening of aforementioned protein or signal.

45. Use of a method according to claim 24, for treatment of neurological insult, disease, deficit or condition.

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